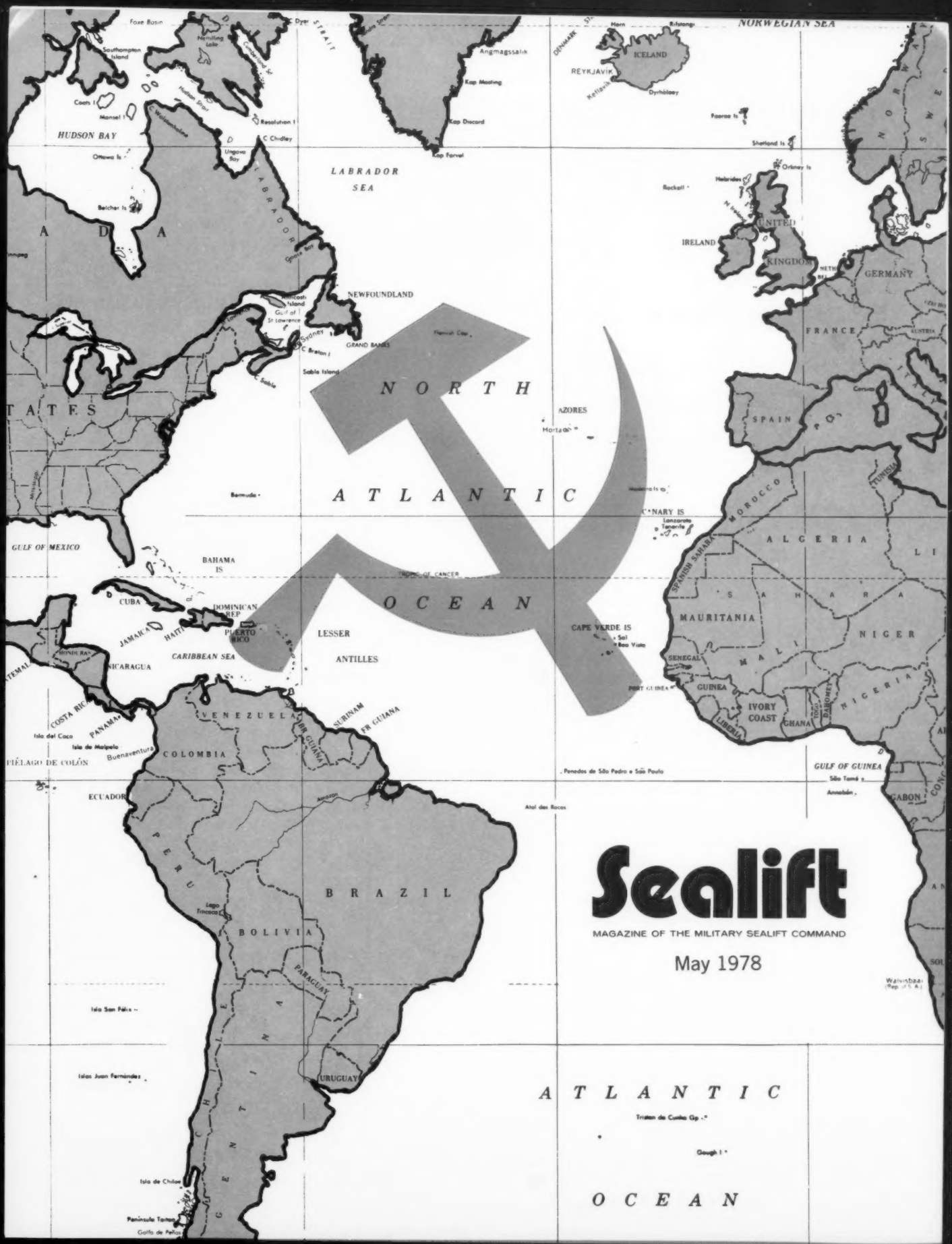


Sealift

MAGAZINE OF THE MILITARY SEALIFT COMMAND

May 1978

Navy, Unions, Industry Sailing Same Course

I recently initiated a meeting in New York with a broad cross section of the maritime industry. Included were senior union officials representing unlicensed and licensed mariners, officials of more than a dozen leading maritime companies, and representatives of the Maritime Administration and the Coast Guard.

The purpose of this very profitable get together—and others will follow—was to provide a forum for top level managers to exchange information and to discuss mutual problems. I am confident that through this meeting and similar sessions to be held in the future months—next stop San Francisco—we can do much to reinforce the vital partnership that involves the government, the unions and the maritime industry.

I can't, of course, speak specifically to the value of these meetings for the other participants. However, I personally gained a great deal from both the group discussions and my conversations with many individuals.

It is the overall impact of such meetings that is most important. By meeting and by exchanging views we illustrate that cooperation is more than a word. It is a reality.

For my part, I tried to emphasize that MSC's fleet support role is expanding, that it is a difficult and demanding job, and that readiness of fleet support ships and crews is essential to the capability of our combatant fleet. I again thanked both unions and management for the tremendous support they provide the Navy and the contribution they have made to national security. I also sought their suggestions as to how we can strengthen our historical relationship.

Another area on which I tried to focus attention is the vital need for long-range planning so that the assets in our merchant marine inventory—crews, ships and supporting systems—and those of the Navy can be integrated effectively in peacetime so that we can function as a team in an emergency.

Maritime officials were especially interested in a broader role in sealift planning. The Navy is seeking to encourage just such participation by providing security clearances for top officials so that they have greater access to information, and so that we can better utilize their obvious expertise.

Management officials also expressed interest in broader involvement in sealift exercises, and in sharing their experience and know-how with the Navy forces they would augment in an emergency situation.

Union officials were interested in the long-term job picture—in the types and numbers of skilled people we will require and how needed skills and familiarity with Navy tactics and strategy can be acquired in peacetime. That too requires joint operations, tests and exercises.

One point we all agreed upon is the necessity for assuring that there is a logical and well-established policy for exploitation of U.S. seapower assets. We also agreed that national maritime policy which incorporates Defense transportation policy must be both well defined and understood.

Evident throughout our discussions was a central theme—that we are in effect in the same boat and that our ability to achieve the goals we share requires that we row in unison.

There was another point that was endorsed by all, that continuing meetings of this type between union, maritime management, Defense transportation officials and Navy fleet representatives are not only a better means to an end but are the very foundation of the stronger and more unified maritime transportation industry we must have to implement our national policies and secure our national objectives. That goal is one we all can support.

Commander, Military Sealift Command

COVER: Soviet seapower grows in no uncertain terms. Story on page 4.

Sealift

MAGAZINE OF THE MILITARY SEALIFT COMMAND

Vol. XXVIII No. 5 Washington, D.C. May 1978

Features:

Soviet Seapower

Admiral takes hard look at Soviet Union's bid for supremacy of the seas.

page 4

Maritime Industry

Shipbuilding executive says Americans need to know about U.S. merchant shipping dilemna.

page 10

Smart Ship Awards

Dedication of officers, crews make eight MSC ships tops in their classes.

page 15

Also:

National Oceans Week — 19

Air-To-Sea Refueling — 21

Rear Adm. John D. Johnson, Jr.
Commander, Military Sealift Command

Larry C. Manning
Legislative and Public Affairs Officer

Louis R. Granger
Public Affairs Officer

Louis Panarale
Editor

Henry L. Balloon
Pamela Martin
Graphics

Russ Egnor
Photo

Linda M. Quinones
Contributing Writer

Sealift, monthly magazine of the U.S. Navy's Military Sealift Command, is published in accordance with Department of the Navy Publications and Printing Regulations (NAVEXOS P-35). Opinions expressed are not necessarily those of the Navy Department. All original material may be reprinted providing credit is given Sealift. Address all correspondence to Legislative and Public Affairs Office, Military Sealift Command, Department of the Navy, Washington, D.C. 20390. Price 75 cents (single copy). Subscription price, $8.20 per year; $2.05 additional for foreign mailing. Also for sale by Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

Sverdlov class cruisers were completed in the 1950s.

Soviet Seapower Puts on Muscle

By Rear Adm. Ralph M. Ghormley, USN

Any assessment of seapower must do more than count war ships and analyze individual capabilities of those ships. Evaluating the seapower muscle of the USSR requires analysis in terms of Soviet maritime strategies (the use of its seapower), as well as its relative maritime, air and land power.

The USSR has historically been a land oriented power because of its geography and history. In the 9th century a group of Swedes marched into Russia and demanded tribute from the northern Muscovite tribes. Since then, she has been assaulted from all directions.

Between the 13th and 15th centuries Russia was invaded more than 160 times. As a result, for nearly 450 years, Russian leaders established the creation of contiguous land buffer zones as their number one defense priority. The buffer zones, however, continued to be absorbed into the growing nation and in turn they had to be protected by establishment of additional territorial buffers.

Thirty years before Columbus found his way across the Atlantic, the Russian nation was about the size of Ireland, 30,000 square miles. By 1920, the buffering process had increased the area surrounding its central city of Moscow to seven million square miles.

From 1920 to 1945, as a Communist nation exporting its ideologies, the Soviet Union folded in another quarter million square miles, an area about equal in size to that part of the United States east of the Mississippi River. After World War II, for the first time, Soviet influence became dominant in Europe. Poland, Estonia, Latvia, Lithuania, East Germany, Czechoslovakia, Rumania, Bulgaria and Hungary total another half a million square miles, and serve the USSR as buffer states.

These buffer zones have not provided a complete guarantee, however. In the 1960s, U.S. policy of strategic deterence was backed up by nuclear warheads propelled by 2,500-mile range sea-launched missiles deployed under the oceans on Polaris submarines.

Technology and U.S. ability to react to attack by use of sea launched ballistic missiles, by amphibious assault, or by air strikes from U.S. or NATO carrier striking forces required that the Soviet Union develop a new type buffer zone—at sea.

By contrast, U.S. security has long been based on seapower. Our ancestors arrived by sea and depended on the sea as a means of settling a new nation, for the many items they needed to develop the vast resources available to them, and for the delivery of U.S. exports. The United States became a dominant world power because of its mastery of the sea—in peace and war.

The boundaries of the United States now total 18,300 miles. Of this, 15,000 miles are either an ocean coastline or

along the Saint Lawrence-Great Lakes seaways. Eighty-three per cent of the U.S. land mass is touched by water. In 1976, nearly 35,000 foreign flag ships entered U.S. ports and U.S. foreign trade was worth over $235 billion. The exports, at $113 billion, accounted for 7.5 million industrial and agricultural jobs. U.S. imports of $121 billion created jobs for another eight million Americans.

The economy of the United States is dependent upon seaborne trade. Loss of our ability to continue that trade would not only imperil the sectors of the U.S. economy which are directly involved in importing and exporting, but also could bring our entire resource-dependent industry to a standstill. We don't have to have a war to face that unhappy event, we simply have to be deprived of the use of the sea or of foreign ports, or be put in a position in which there are not enough ships to carry U.S. trade.

The economy of the Soviet Union is not dependent on the sea. The Soviets occupy the single largest land mass in the world. Except for rubber and tin, the raw materials they need are available within their own boundaries or those of their satellites. Except for two countries, all Soviet allies are accessible by land.

The Soviets have 26,000 miles of sea coast. All but a few hundred miles, however, are blocked by ice most of the year. Only a few major ports in the Baltic and Black Sea are ice free the year around.

Today, the USSR exports oil. By contrast, the United States is rapidly becoming a have-not nation. The recent oil crisis should have taught us that we don't have enough oil. We have no chromite or tin. We import more than 90 per cent of our asbestos, manganese, beryl, nickel, cobalt, and bauxite. Our automobiles depend on 31 materials from 32 countries; our telephones on 48 materials from 18 countries; our missiles on 10 materials from 15 countries. These are less evident, and don't upset our national love affair with the automobile so many Americans do not realize that the United States is critically short of many other strategic and critical raw materials that we need to keep going, just to keep our economy moving forward and to sustain our way of life—not to mention meeting national defense needs.

We now have access to most of the world to obtain needed commodities, but we need friendly or at least neutral suppliers, and sea lanes and ships to deliver the resources we need. Thus seapower is essential to economic well being and security of our nation and its people.

Although the Soviet Union is not naturally dependent on use of the sea, in the last 20 years it has built a large and powerful navy with class after class of modern ships. The Soviets are obviously competent shipbuilders, willing to make step improvements and determined to do it in quantity.

Any skepticism about their intention to be number one on the seas of the world should be erased by the most spectacular part of their shipbuilding program. Their first aircraft carrier is the largest warship ever built in the Soviet Union. It is an angled deck carrier with a conventional type superstructure on the starboard side. It handles both aircraft and helicopters and additional carriers are under construction.

The Soviet submarine force is also large and growing. Each of their 24 Delta-class submarines carries 12 to 16 submarine launched ballistic missiles whose range is 4,200 nautical miles.

At present building rates they could have 30 Deltas at sea when the first U.S. Trident submarine becomes

The gas turbine ship Krivak has an assortment of heavy armament and electronics.

The Soviet helicopter carrier Moskva (right background), fulfills a combination role of anti-submarine warfare. Its 20 Harmone helicopters give it a potential for amphibious assault operations. In foreground is a Mirka class escort ship.

operational after many years of study and development. The Soviet Union has a number of submarines that carry cruise missiles while the United States is just starting to consider a cruise missile program.

Such a building program causes me to ask "why?" Initially it appeared that Soviet seapower was not meant to enhance their own use of the sea, but rather to deny potential opponents' use of the sea. Simplistically, at least, such sea denial is easier to achieve than sea control. A sea-denial oriented navy can concentrate its entire force on one mission, keeping its opponents' seapower from being effectively employed by either destroying it or restraining it where it cannot contribute to national goals.

On the other hand, a sea control navy such as that of the United States must have enough ships to accomplish two tasks, protect its own and allied transports, whether to maintain a shipping bridge across the North Atlantic in support of NATO or to transport oil around Africa from the Persian Gulf, and prevent hostile forces from interfering with the execution of national policy.

Because of the differences in tasks, even a small navy with a sea denial mission can effectively fight a large navy burdened with a sea control mission. For example, in the War of 1812, our navy inflicted damage far out of proportion to the relative sizes of the small American Navy and the then ruler of the seas, the Royal Navy. Confederate raiders during the Civil War almost wiped out our whaling industry and caused tremendous damage to U.S. trade by their sea denial capability. Their political impact far exceeded their numbers.

The German submarine force in World War I nearly isolated England. In September 1939, Great Britain had 15 battleships, 8 aircraft carriers, 64 cruisers, 184 destroyers and 59 submarines—and the mission of the Royal Navy was sea control. Germany had 2 battleships, no carriers, 11 cruisers, 22 destroyers and 57 submarines, of which only 39 could go to sea. The mission of Hitler's Navy was sea denial.

Those who remember 1942 and '43 know that the German navy nearly succeeded in its attempt to deny allied use of the sea lanes. In June 1940 they had 19 submarines at sea. Those 19 submarines sank 63 ships, 355,000 tons. By February 1941, the Germans were down to a total of 21 submarines. Yet, in March of that year, they sank 43 ships totalling 236,000 tons.

To think of what 250 submarines represent in terms of capability to prevent our use of critical sea lanes, sea lanes linking the United States to NATO allies in Europe—or those needed to sustain U.S. industrial might—is not very soothing.

The World War I and II arsenal of democracy is now an island located in what overnight could become a very unfriendly sea. The cushion of time that unsophisticated weaponry provided in World War I and II allowed us to build up the Navy fleet and merchant marine is not likely to be available again.

Recent Soviet naval literature reflects a broader and more sophisticated approach, however. Couched in Marxist logic, it develops the thesis that because of the growth of technology since World War II the "scientific laws of history" have moved the main class struggle overseas, and that defense of a homeland begins on the high seas.

This new approach says that engagements of fleets in a

historical or traditional manner are obsolete. The targets of the fleets are primarily ashore. The ocean depths hide the main Soviet threat to U.S. military and industrial strength, their strategic missile submarines.

Similarly, the principal threat of the west to the Soviet mainland is our own strategic missile submarine force. Soviet recognition that our attack submarines provide a lethal anti-submarine warfare weapon against their own submarine force, and their awareness that their own submarines need protection in transit between home bases and ocean operating areas are reflected by their substantial force of large anti-submarine warfare ships (Krestas, Krivaks, and Kievs). They are designed to destroy U.S. missile carrying submarines at sea as well as to protect their own submarines in transit.

Classic Marxist "contradictions in history" occur when the forces of the working class collide with those of capitalist imperialism. The "laws of history" won't predict time, place, or details, but Marxist logic dictates major conflicts will occur. The new Soviet naval doctrine notes that except for a few conflicts, like that in Southeast Asia, these confrontations generally have resulted in victories for the imperialists who had and effectively employed naval power.

It further holds that with the Eurasian land mass under control of the Soviet army and the movement of the class struggle to an overseas area probably only the Soviet navy can provide the flexibility needed to enable Marxist political, military, and social elements to produce a victory in the local class struggle.

Beneath the Communist euphemisms, that sounds familiar. It is seapower projection, as the U.S. Navy defines it. In fact, the Soviets now look at the use of seapower, including sea control, much as does the U.S. Navy. Both reject the Mahan theorem requiring broad control of the seas—the U.S. Navy having realized the near impossibility of meeting such a wide challenge in the 1960s.

The Soviets express their recognition well, "Modern weapons are so lethal and so fast that sustained dominance by any naval force over any body of water may not be possible." The depth of their appreciaton of seapower is reflected in "The Soviet navy is only the maritime tail of the foreign policy dog. . .. The Navy's task is to provide victory on the naval side of a political event, not necessarily just to defeat the enemy at sea."

The Soviet Navy has effective ships. Generally, they are smaller than those of the U.S. Navy, but very seaworthy. They have a large first-strike weapon load and large propulsion plants since the Soviet Navy states that future wars will be fought by forces already on station and that contemporary weaponry is so lethal that he who fires first will probably win, particularly if he uses overpowering and immediate force.

The companion characteristics, modest on-board reload capability and limited endurance, auger a need for Soviet overseas bases or support ships. U.S. ships, to operate on the far side of the oceans, need built-in staying power as well as an effective auxiliary or support force.

In the broad analysis of seapower, it is clear that the Soviets give equal attention to commercial shipping. They have more than 1,700 merchant ships and rank 9th in the world in tonnage. Three out of five merchant ships are less than 10 years old. In the last 10 years their massive building program produced nearly 1,100 new merchant carriers.

Russia builds her merchant ships at 18 large yards in the USSR, each with at least 2,000 workers. At a recent

Soviet sailors are also well trained and professional.

The Soviet's first aircraft carrier Kiev is under way in the Mediterranean. Kiev is the largest warship ever built in the Soviet Union.

count, 75 Soviet merchant ships were under construction as were another 15 for other countries. Soviet merchant ships are sound, serviceable ships.

They are self-sufficient, equipped with their own cargo handling equipment. Many are roll-on, roll-off ships. They can operate in undeveloped ports on the coasts of Africa, Asia, or South America with little support from shore except a place to put their cargo down.

The Soviets exploit their seapower and project Soviet influence at a time when U.S. maritime labor costs have driven our merchant marine to use automated and sophisticated ships with cargo handling facilities.

Because the Soviet merchant fleet is controlled by the government, it is a powerful political tool. During the Southeast Asia war, Soviet merchant ships sailed 14,000 miles from the Black Sea to deliver war material to Haiphong in North Vietnam. Those ships would then pick up return cargo, undercutting world commercial shipping rates and freezing out other merchant ships.

This had two advantages. It gave the USSR a return on its investment in merchant ships. Additionally, and perhaps more important, by undercutting rates of western shipping companies, the Soviets could drive them out of economic competition.

Recent statistics show that Soviet ships have visited about 1,100 ports in more than 110 countries in a year's time. A large number of these were in Third World nations where political influence is as much the Soviet goal as economic penetration. Many of those countries are major sources for critical raw materials needed by the United States.

A third source of Soviet seapower is its fishing fleet. It's huge—one of the largest in the world, with more than 20,000 motorized vessels. Soviet trawlers are models of efficiency and are supported by large factory ships which go out for up to a year with the trawlers.

The organization and centralized control of the fishing fleet is impressive. The factory ships process the catch, can it, label it, box it, and transfer the product into freighters that take it home while the professional fishermen remain at sea. As a fishing nation, the Soviet Union, with an annual catch of about 17 billion pounds, ranks second to Japan. By comparison, U.S. fishermen have an annual catch of about four billion pounds.

To provide a sound research base for their seaward look, the USSR also has a tightly controlled, centrally directed oceanographic program. It is of great military and scientific value and provides a base for exploiting the natural resources of the seas.

More than 7,000 Soviet scientists and technicians are involved in the whole spectrum of oceanography and ocean engineering, and about 200 research ships are working in all parts of the world.

The military fleet, the commercial fleet, the fishing fleet, and the oceanographic fleet are all closely and directly controlled by Moscow—an awesome demonstration of Soviet seapower, which provides a continuously expanding capability and reflects a national determination.

Against all this, where does the United States stand? The Soviets have more than 2,400 Navy ships in commission. Of these, more than 1,600 are armed combatants.

Adm. Sergei Gorshkoff: "Sooner or later the United States will have to understand it no longer has control of the seas."

The U.S. Navy has 458 ships in commission, of which 360 are fighting ships.

The United States has 118 submarines, the Soviets have about 330. We have about 150 destroyers, frigates and cruisers. They have about 280. We have 63 amphibious warfare ships. They have 82. We have 3 patrol boats. They have about 590. We have 101 support or auxiliary ships. They have about 780. The only category in which the United States leads is carriers. We have 13 to their 3.

Because of different ship roles and missions, numbers of ships cannot be used for direct comparisons. But they do illustrate the nature of the problem and the extent of the resources available to each navy.

The problem is not confined to relative strength of Soviet and U.S. Navy forces. In 1954, 25 per cent of our imports came to this country on merchant ships flying the U.S. flag. Last year, less than 5 per cent of our imports were delivered in U.S. flag ships. The USSR imports 50 per cent of its material on its own merchant ships; Japan imports 47 per cent on Japanese ships; France 38 per cent; Britain 35 per cent; Italy 23 per cent and Sweden 22 per cent. Not only is the United States merchant fleet small, we rank 14th in the world in shipbuilding. Given current costs to build and operate ships, the privately-owned U.S. merchant marine is not likely to expand without a national effort.

U.S. fishing programs provide about 1/25th of the estimated world catch of 100 billion pounds although nearly three quarters of the fish eaten in America are gathered by foreign-flag fishing boats.

For what it's worth, the total world catch 10 years ago was 20 million metric tons. It is now 50 million. In another 10 years, oceans may be less productive. Oceanographic research programs of the United States also are minuscule when compared with other nations, and are miserly when compared to our space research program.

In the future, the United States will be increasingly subject to economic blackmail. We must reinforce our educational base, our food resources, our industrial technology and our seapower, for these are our strengths.

The U.S. fishing fleet and merchant fleet are as basic to U.S. survival as are industry and agriculture. To provide them with effective security on the oceans, in war or peace, the United States also needs a strong naval force.

No nation has ever controlled its course without seapower, no matter what other strengths it may have had. Maritime power has been and is now an integral part of overall American strength.

Those who control totalitarian governments have a remarkable habit of telling the world exactly what they plan to do, sometimes even providing a timetable. People in the western democracies seem to have developed an equally remarkable tendency to ignore such warnings and we generally do it at our peril. Remember Mein Kampf? Remember Lenin's statement that the road to Paris lies through Indochina? Remember Krushchev: "We will bury you"?

Adm. Sergie Gorshkoff, the chief of the Soviet navy for over 20 years, has given us fair warning. He said: "The flag of the Soviet Navy flies over the oceans of the world. Sooner or later the United States will have to understand it no longer has control of the seas. Our country has built a modern navy and sent it out into the ocean in order to advance our own state interests."

The Soviet thesis celebrating Lenin's birth centenary contains an additional warning. "Peaceful coexistence has nothing in common with class peace and does not cast even the slightest doubt on the sacred right to use all means, including armed struggle, in the cause."

When the Soviets speak of abolishing war, they refer only to the "predatory, aggressive wars" waged by imperialist and reactionary powers—namely us. Wars which advance the cause of world Communism are "just wars." Americans should listen seriously to these Soviet leaders who are telling us what they intend for the future. We should realize that Soviet seapower provides a means for carrying out their plans, and we had better develop the determination to prepare to meet their challenges. ⚓

Rear Adm. Ralph M. Ghormley, deputy director of operations at the Defense Communications Agency, Alexandria, Va., graduated from the U.S. Naval Academy in 1949. He served aboard the destroyer USS Orleck and the submarines Sea Fox, Hardhead, Raton and Barb before commanding the nuclear attack submarine Scorpion, the Polaris submarine Sam Rayburn, Submarine Division 53 and the nuclear attack submarine tender L.Y. Spear.

Shore assignments included postgraduate study in communications, nuclear power training, commander of the U.S. Naval Base at Guantanamo Bay, Cuba, and deputy commander of the Naval Electronics Systems Command.

Photos courtesy Newport News Shipbuilding

New ships are near completion at modern Newport News shipyard. Hartsock says the public views American shipbuilding as an antiquated business.

U.S. Merchant Marine, An Impressive Story That Should Be Told

By Robert L. Hartsock

When people think about the shipbuilding industry, many tend to view it as an antiquated business with obsolete facilities, already overfed at the public trough through countless subsidies and handouts. Nothing could be farther from the truth.

The public's view of ship operators and maritime unions is about as dismal—and just as inaccurate. Thanks in large measure to Hollywood, we see the merchant marine depicted as a bunch of overpaid, under-educated, unconcerned thugs living in floating squalor as they steam unsteadily from one seamy port to another.

When I first told my mother-in-law that I was going to work at a shipyard, she thought the industry and I deserved one another, but it

was a shame her daughter also had to be involved.

That distorted image and the general lack of understanding about the contributions of shipping and shipbuilding to our nation's vitality played a large part, I am convinced, in the defeat last fall of cargo equity legislation—one of the few glimmers of hope for our industry's recovery.

The proposed legislation would have required that a modest portion of U.S. oil imports be carried on American ships. Most other seafaring nations, including several of our closest allies, already have some form of national cargo policy that promotes their own interests and discriminates against American shipbuilders and fleet owners.

The cargo equity bill would have set a 9.5 per cent minimum by 1983. It was defeated despite the fact that other nation's current requirements often exceed 50 per cent.

Our unfortunate public image certainly is undeserved, but my industry is guilty of not doing much to correct it. Until recently, we haven't recognized the need to toot our own horns.

Oh, sure, we commiserate with one another and preach to the choir. But we've forgotten the folks back home in Topeka, Albuquerque, Idaho Falls and Peoria. We have forgotten the people who don't know port from starboard, the people who see few physical signs in their communities of ships or shipbuilding, the people who are unaware of the products and services the maritime industry provides for them each and every day.

I believe the maritime industry has a most impressive story to tell. But we're not telling it often enough or convincingly or to the right people.

We really can't expect any great public concern for the maritime industry. People's primary concerns and the views we listen to or read with any degree of interest are those which affect our lives.

And that's precisely how we can reach more people, by showing the American public that what happens in the maritime industry does affect each and every one of them, wherever they live, whatever they do. Few industries impact so many issues of such concern to so many Americans—energy, environment, foreign policy, national security, the economy, agriculture, and more.

National security is, of course, a major concern to Americans. It's one

Vessels like this liquefied natural gas carrier, Hartsock believes, can help make the United States less dependent on foreign flag ships.

Hartsock claims profits for shipbuilders, shipowners and ship operators hardly justify staying in business.

of the benefits of cargo equity that should have been hit much harder in last year's campaign in support of this important legislation.

There seems to be a growing awareness of the need for a more adequate and realistic Navy shipbuilding program. But it makes little sense to me to build a more effective Navy to keep sea lanes open if, at the same time, we are not building a more effective merchant fleet to use those sea lanes.

In an era of push-button nuclear warfare, I could understand that it might be difficult to appreciate the need for a strong U.S.-flag merchant fleet. A war could be won or lost before we had a chance to mobilize.

However, the more realistic defense scenarios involve longer conflicts fought with conventional weapons. This type of threat to our national security requires that we maintain the ability to quickly deploy our forces and to keep them supplied. Readiness requires ships.

If we as a nation are not willing to prepare ourselves for that possibility, then why are we spending $7 billion a year on the National Guard and the Reserves? Can we afford not to also maintain a merchant marine that pays its own way, even during peacetime, and makes economic contributions that more than offset the public funds it receives?

National security means more than war games and being prepared for any eventuality. It means a continuing and reliable supply of the raw materials that our nation depends upon—not only for its military might but also for its industrial and economic vigor.

There are 71 of these critical raw materials. They include bauxite that is essential to the production of aluminum, iron ore for steel, chromium for a number of high-strength alloys, titanium for strategic aircraft,

and tungsten for missile components.

Of these 71 critical raw materials, the United States must rely on foreign sources for 68. We must import them, and you don't bring iron ore to the United States in airplanes.

Our government has identified 25 of these raw materials as "strategic." The trade routes used to bring them to our shores are dominated by foreign-flag ships. There are nearly 1,500 foreign-flag ships serving these strategic trade routes, compared with less than 300 U.S. merchant ships on the same routes. Not only are we forced to rely on foreign sources for these strategic materials, we are forced to rely on foreign ships to bring them to us.

Eleven of those materials have been classified by the government as "most strategic." Seventy-five per cent of these "most strategic" materials must be imported. And we are forced to rely on foreign ships to carry 90 per cent of even our "most strategic" imports.

Merely to maintain the already tenuous presence of the U.S. merchant marine on these strategic trade routes would require us to replace 208 of our ships by 1990.

To totally eliminate our reliance on foreign fleets, we would have to build an average of 149 tankers, freighters and bulk cargo carriers each year between now and 1990.

National security considerations aside, from a pure economics standpoint our nation depends on international trade. The portion of our gross national product generated by international trade has grown from 5 per cent in 1965 to 20 per cent in 1975, and the trend continues upward.

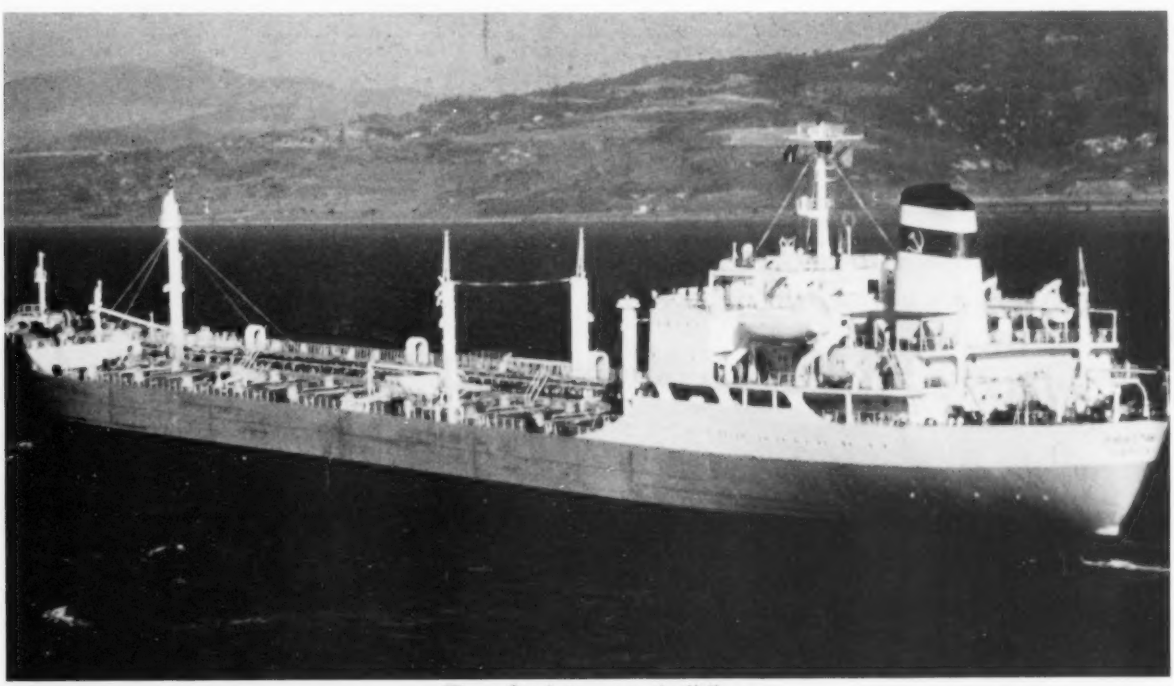
We generate the largest share of the world's seaborne trade—four times that of the Soviet Union. But less than 5 per cent of our foreign trade volume is carried on American-flag ships. The Russians, on the other hand, have a merchant marine capable of carrying more than half of the foreign trade.

The Russians know a good business proposition when they see it. They realize the contribution to balance of payments made by a merchant marine. That's one of the reasons that each of their last 10 Five-Year Plans has provided for a growing merchant fleet.

Twenty years ago the Russian merchant fleet ranked 20th in the world. It is now eighth, and contains four times the number of ships in the American fleet. Russian orders for new ships from the world's shipyards last year alone equalled more than one-third of our entire fleet.

That growing Russian fleet is making increasingly regular appearances in American ports. Between 1971 and 1976, in fact, the Russians increased their share of American cargo by nearly 22 times.

The Russians recognize an eco-



The Soviets are building many small ships like this tank vessel which can enter many of the world's shallow-draft ports.

nomic fact of life that we overlook. The cost of transportation must be a part of the price of any product we sell. It's in the price of every bale of cotton we export to Japan, every crate of fresh vegetables we export to Europe, every load of cement to Iran, every shipment of hospital equipment to Africa and every tractor we export to Brazil.

If the price of that tractor is too high, it won't sell in Brazil. It doesn't matter whether the problem is the high cost of manufacturing or the high cost of shipping. The results are the same—no sales in Brazil, fewer jobs in Wisconsin.

I think we have an impressive story to tell. It should demonstrate that, regardless of where they live or what they do, all Americans have a big stake in the vitality of the maritime industry.

The American public has the right to demand a national defense policy that provides for a strong and stable naval shipbuilding program so that all Americans can sleep secure at night.

Americans have the right to demand a national maritime policy that will allow us to share in the very real social and economic benefits of international trade, that will allow our nation to play a strong and effective role in world commerce, that will require at least some small share of American trade to be carried in American ships.

The American public has the right to demand a national energy policy that recognizes the need to import crude oil and liquefied natural gas, a policy that takes full advantage of the opportunities that private business stands ready to provide to ease the energy crunch.

If enough of our citizens make these demands, we will get the defense, maritime and energy policies our nation so desperately needs.

The fight for a stronger merchant marine, one able to carry a significant portion of our nation's foreign trade and capable of augmenting the Navy in an emergency is not lost. Neither is it over. The need is great, and it must be brought to the attention of the American public which has much at stake. We who are a part of the maritime industry must do more to inform and to educate, and to help develop the general understanding that is needed. ⚓

Robert L. Hartsock is vice president, Corporate Development and Marketing for Newport News Shipbuilding. He is responsible for the company's business planning and development program and for the marketing of commercial and naval vessels and engineering services. He also is responsible for the company's industrial products operations (conducted by Newport News Industrial Corporation, a wholly owned subsidiary) and the company's ship repair operations.

Hartsock joined Newport News Shipbuilding on January 1, 1973, as president of Newport News Industrial Corporation. He was elected to his present position on August 6, 1976.

Born in Peoria, Illinois, on July 30, 1939, Hartsock was graduated from the University of Illinois in 1962 with a Bachelor of Science degree in industrial engineering and a Bachelor of Arts degree in political science. In 1968 he was awarded a Master of Business Administration degree by the University of Washington in Seattle.

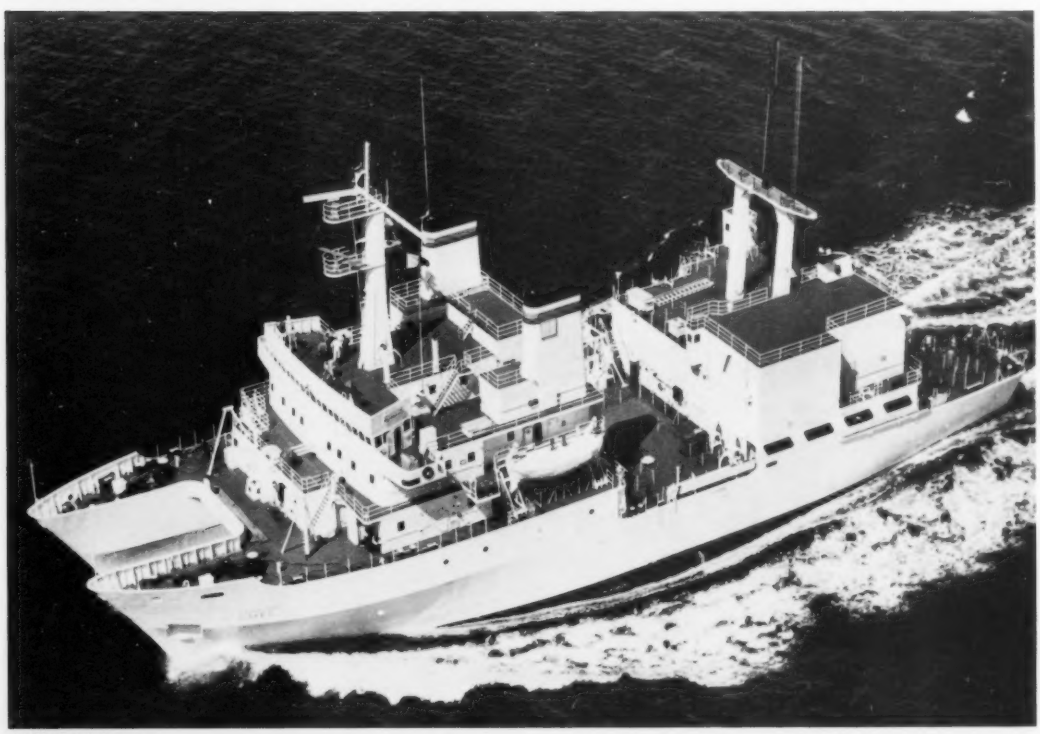
USNS Ute

Eight Ships Earn 'E' Pennants

Eight ships fly royal blue pennants with the gold letters E and MSC emblazoned on them. The E on the banners stands for excellence and it informs everyone that they were judged best in their class among Military Sealift Command ships for the past fiscal year.

Earlier this year, ceremonies were held aboard each ship and the crew received the pennant and a plaque designating their ship as a winner of the Smart Ship award for 1977.

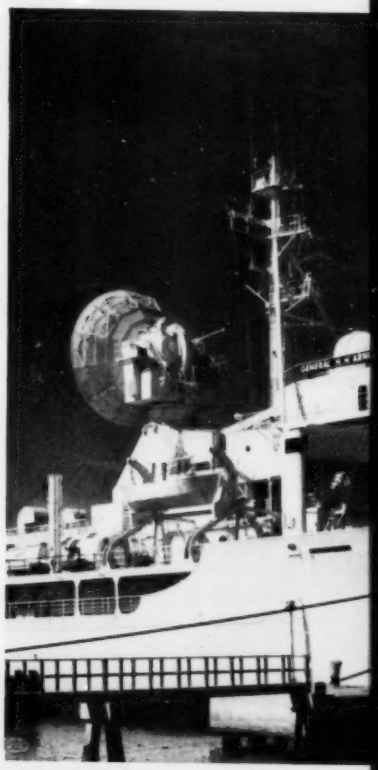
In a message to the men of each ship, Adm. John D. Johnson, MSC



USNS Hayes

USNS Silas Bent

USNS Navasota



USNS Furman

commander, commended them for "achieving excellent administration and operational readiness" necessary to win the award.

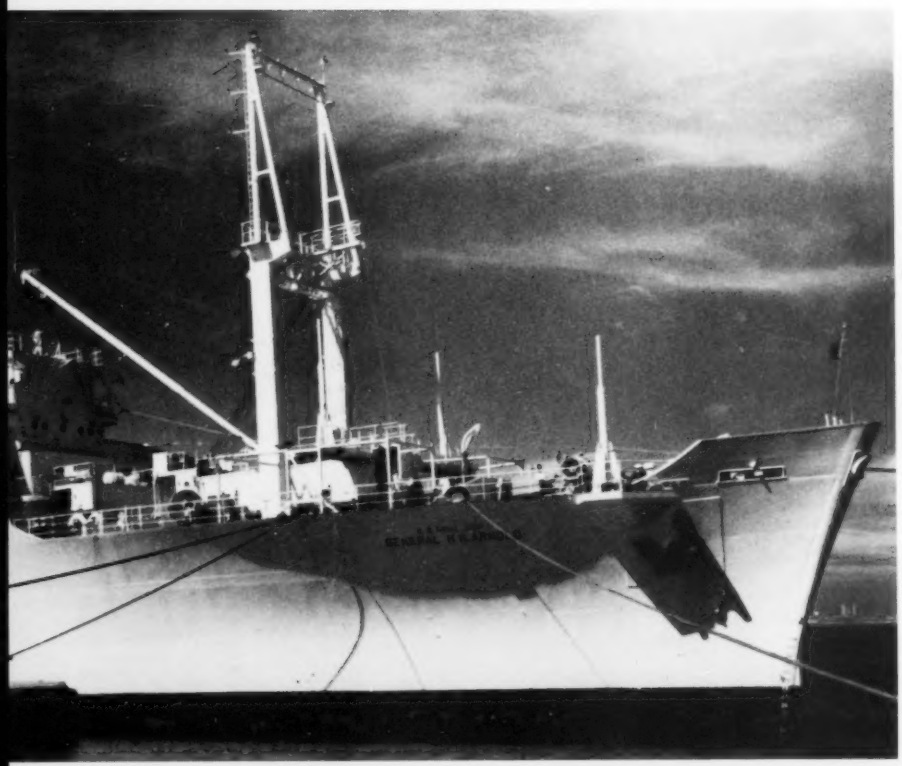
"The standards of reliability maintained on each ship reflect the leadership of the officers and the competence of the crews," Admiral Johnson said.

One of the Smart Ship award winners, the oceanographic research ship USNS Hayes, also received the Vice Adm. Roy A. Gano award for showing the greatest improvement in command inspection ratings.

The three MSC, Pacific ships to win Smart Ship awards were Hayes, the missile range instrumentation ship Range Sentinel and the cargo ship Marshfield.

In MSC, Atlantic, the ships that now fly the big E are the cargo ship Furman, the fleet ocean tug Ute, the oiler Navasota, the surveying ship Silas Bent, and the missile range instrumentation ship Gen. H. H. Arnold.

Winning ships must maintain hulls and topsides in excellent condition



USNS Arnold

Photo by John Francavillo

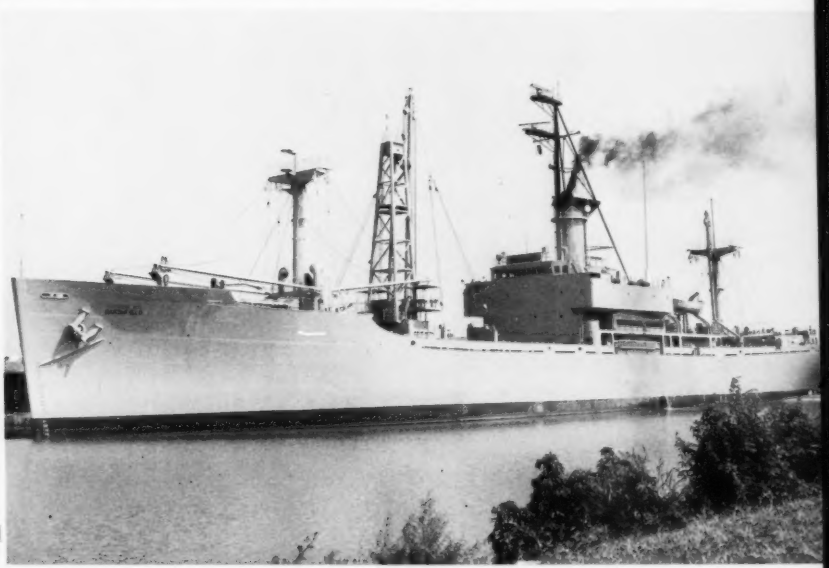
Capt. Herman Fritzke, commander of MSC, Atlantic (left) presents Admiral Gano Award to Capt. Friberg, master of USNS Hayes.

and engineering plants must be both effective and reliable.

Constant observance of safety measures and neat and secure stowage of gear are measures of smartness. Ship handling, operational reliability, prevention of engineering casualties and crew performance also are considered in award selection.

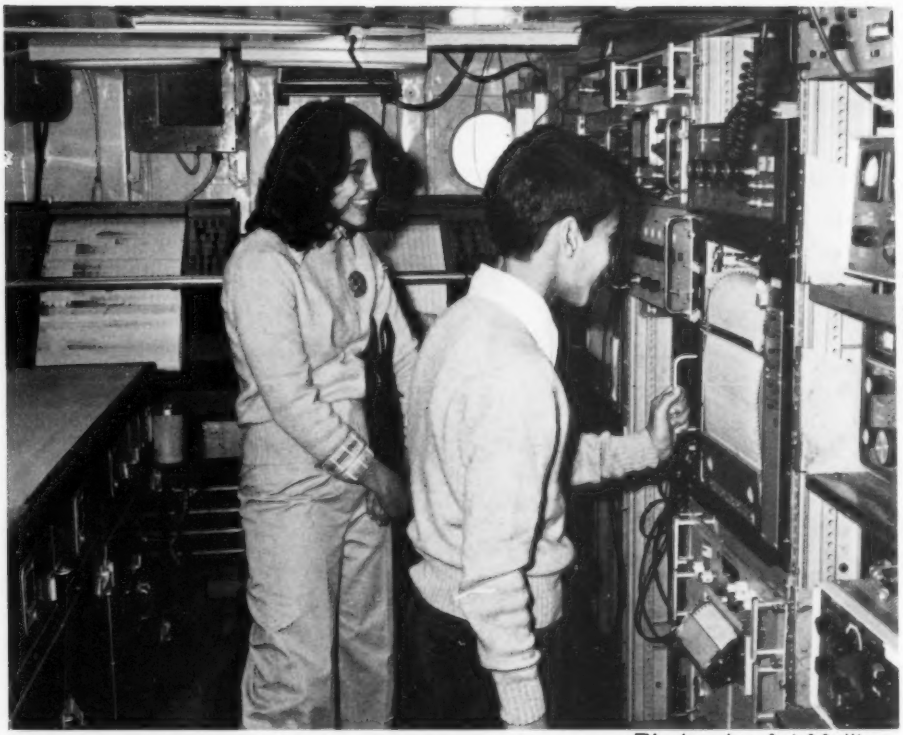
Annual inspections benefit both ship's personnel and the command. The grade assigned a ship is intended to reflect the administrative capabilities of those in command. The master, department heads and crew must know their responsibilities in maintaining their ship to meet command standards.

Standards and procedures governing selection of Smart Ships now are being reviewed by headquarters and area commands. Purpose of the intended updating of award criteria is to emphasize the importance of reliability, efficiency, economy and productivity in selecting future winners of the annual MSC ship awards. It is anticipated that the new procedures will be in effect for the next fiscal year. ⚓



USNS Marshfield

USNS Range Sentinel



Two young visitors aboard the Lynch during the open house were Richard Mullins, 12, and his sister Carmen Maria, 13, of Vienna, Va.

Photos by Art Mullins

Lynch Takes Part In National Oceans Week

If any ship deserved to represent Military Sealift Command for National Oceans Week, it was the oceanographic research ship USNS Lynch.

Coming back from 19 days of rough sailing off Cape Hatteras, N.C., the Lynch docked at the Coast Guard Pier at Alexandria, Va., one of nine ships to be on display in the Washington, D.C. area between April 16 and April 23.

National Oceans Week was sponsored by the American Oceanic Organization and the Waterfront Washington Assn. to focus public attention on the potential benefits of the oceans.

The week also provided an opportunity to bring together various organizations seeking solutions to vexing oceanic problems.

Lynch was recently involved in studies of the Gulf Stream at Cape Hatteras where treacherous shallows and turbulent seas have been a danger to navigation from the days of sailing ships to the present era of the supertanker.

"We finished two days ahead of schedule, got all the data we wanted, plus 10 per cent more," said Floyd Adderly, senior operations officer for the U.S. Naval Oceanographic Office, which is responsible for planning scientific assignments for the Lynch.

The Lynch is operated by 27 MSC Civil Service mariners and can accommodate as many as 13 scientists and technicians. Capt. Thomas F. Hadler, master of the Lynch, also expressed satisfaction over the Gulf Stream studies. "The technicians accomplished a great deal, despite the bad weather," Hadler said. "And when you meet bad weather on a ship as small as Lynch, you are really in for some rough sailing."

Lynch is little more than 208 feet long but its seaworthiness has never been in doubt since it was first accepted by MSC in October 1965 after being built by the Marietta Manufacturing Co., in Point Pleasant, W. Va.

The Lynch and the USS Spartan-

Naval Oceanographic Office senior representative Floyd Adderly shows young visitors how the oceanographic monitoring system works.

burg County, a transport landing ship, were the two vessels representing the Navy. The others on display are operated by private industry, universities and the Coast Guard. All ships were open for public inspection during the final days of Oceans Week.

On April 25, Lynch left for Newport, R.I. to take on stores and proceeded for Bermuda where it carried out an assignment for the Naval Oceanographic Office.

In its brief visit to the Washington area, the Lynch did its part to make the public more aware of what the ocean is all about. The American Oceanographic Organization expressed it this way:

"Where once the oceans were cloaked in mystique and superstition, we now plumb their deepest depths with an amazing array of technological devices. Indeed, we have raised the hopes and expectations of the world community to dream of the bounty realized from the oceans—from food, to energy, to mineral resources to urban habitats." ⚓

This boy gets a helping hand from his dad while inspecting the radar scope on the bridge of the Lynch.

'Fill It Up'— Then Up, Up and Away

By Larry C. Manning

"Sealift Tanker, this is Air Force 007, now 90 miles north of your position and ready for final approach and refueling. Over."

"Air Force 007, this is Sealift Tanker. All systems go for sea-to-air refueling. Request you deploy your parachute at 3,000 meters, then descend to 1,000 meters and fly 360 degree orbit about tanker at a range of 450 meters. Please advise prior to deployment of parachute and line. Anticipate your fuel requirements will be fulfilled within 4½ minutes of hookup."

That imaginary conversation between the pilot of a huge Air Force C-5 jet cargo aircraft and the master of an MSC operated Sealift class tanker may sound far out. It is far out. However, a study prepared by the Stanford Research Institute for the Defense Advanced Research Projects Agency indicates that sea-to-air refueling—with an aircraft flying a tight, low-altitude pylon turn about the tanker—is feasible.

The scenario is simple enough and the immutable laws of gravity lend credence to the concept. But, it does boggle the mind to visualize a 700,000-pound cargo or passenger aircraft flying a tight circle around a ship, the two hooked together by a large hose through which thousands of gallons of aviation fuel are flowing every minute.

The operation would begin when the aircraft is about 3,000 feet above the tanker. The plane's crew would release a light line with a parachute attached. As the line is played out and the tanker-orbiting aircraft drops down to 1,000 meters, the line would gravitate toward the central mast on the ship. That's because of inertial forces, the type force that

allows one to swing a pail of water vertically through a 360 degree circle without spilling a drop. The line and chute would inevitably descend to the central point of the plane's orbit, hopefully, the ship.

When the line and parachute are within reach, the ship's crew would attach it to a hose and the hose would be winched aboard the aircraft. A probe at the hose end would be seated in a receiver on the aircraft. That will be done automatically with no hands-on effort required. The receiving unit would be on the outside of the aircraft.

As the plane maintained a tight bank, centripetal force would help to keep it within a short radius from the ship. The architects of the sea-to-air refueling concept also believe that the hose itself could work much like a control cable attached to model airplanes. It would tether a plane swinging in a circle about the tanker during refueling operations.

A problem, to the layman at least, is the effect on the plane when the hose is released. Obviously, the weight and mass of the aircraft would tend to accelerate its departure and might present unwelcome problems for the pilot and crew.

Skeptical of the workability of such a concept? The authors of the study believe it's workable, and suggested other alternatives. All are designed to solve the problem of deploying aircraft on long-range flights which require they carry a sizable load of fuel which reduces the payload that can be delivered.

In a second alternative, the aircraft would fly a straight line over the ship, snagging a loop of line stretched between two masts, then winching a hose aboard. The aircraft would then orbit the ship, refueling in the manner previously described. This approach might improve stability of the aircraft since a longer length of hose could be used. The extra hose would be reeled in by the ship as the aircraft maneuvered into a tighter refueling orbit.

As any pilot or ship master knows, it would be impossible for the two to maintain a constant distance. Ships do roll and aircraft pitch about in much the same manner. And the tanker would be moving at about five knots.

The solution? A constant tension device which would allow as much as 200 feet of cable to be played out while maintaining a design tension of about 20 tons. The authors of the study suggested that automatic piloting might be feasible—thus reducing the rather obvious strain on the jet aircraft pilot who probably couldn't wait to cut the umbilical cord connecting his speedy airborne vehicle to one moving slowly over the surface of the ocean.

The study also suggested a spinoff that could be derived from the basic concept, an idea particularly useful to the Navy. Using gear developed for ship-to-aircraft refueling, fixed-wing Navy aircraft could emplace or recover large sonobuoys or oceanographic equipment. That would make it unnecessary to maintain some support ships and would save time needed to position them and to recover research or navigation equipment.

It's easy to scoff at the concept—but, many were skeptical of man's ability to navigate the skies, let alone reach the moon. Some doubted that the tank would have any value in military conflict. The inventors of the machine gun, the rocket, the horseless carriage and countless other brainchildren of the creative faced tremendous obstacles set up by those of us who generally ask why rather than why not.

The study was done because of someone who asked why long-range aircraft must continue to be limited by land-based support and air-to-air refueling. During the October War of 1973, in the Middle East, aircraft operated by the Air Force's Military Airlift Command landed at the Azores to refuel. Without that stop, their payloads would have been much less. The C-5 Galaxy, for example, MAC's largest cargo carrier, can carry a payload of 220,000 pounds for 3,000 miles. If the aircraft has to fly 5,000 miles the payload is reduced to 100,000 pounds, a 50 per cent reduction.

Several alternatives were considered to improve the productivity of air cargo carriers. Among them were establishment of floating islands to replace land bases, locating floating and anchored airstrips in mid-ocean, modification of cargo aircraft to land on Navy carriers, and development of short range, very large tanker aircraft that could take off from a carrier deck to refuel cargo aircraft passing overhead.

All were rejected in favor of the ship-to-plane refueling concept because of their high capital costs,

inflexibility and vulnerability to attack.

While emphasis of the study was placed on refueling of cargo aircraft the procedures outlined also would apply to passenger planes, fighter aircraft, bombers or any similar plane—from 50,000 pounds up.

To permit such an operation, the tension on the refueling hose would have to be kept below 3 per cent of the aircraft weight. The drag, by use of a fairing on the hose, would be kept below a few per cent of the aircraft thrust. Those are technical details, explained in the report in complex mathematical language. Added up, they provide an answer to the question: Will it work? The answer? It will, we think.

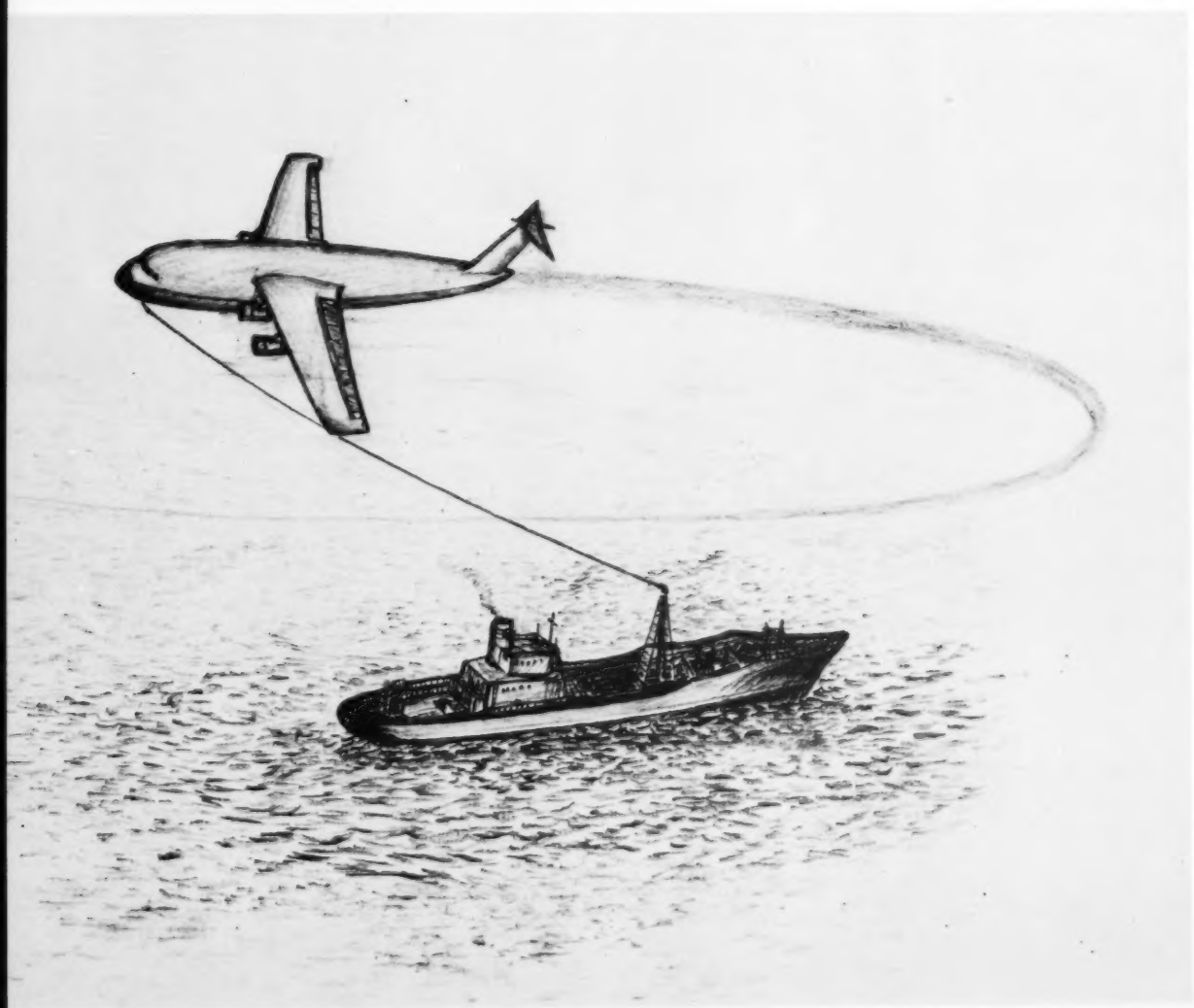
The study report indicated that the type of hose needed to refuel a C-5 Galaxy or a C-141 Starlifter, both MAC cargo aircraft, would mean a drag of about four tons—and would pose no problems for those aircraft. However, a lighter fighter might not be able to handle that drag. The experts feel the drag could be reduced by a factor of 10, drawing on Navy experience with faired hose or development of a streamlined cylinder type hose.

Perhaps it's easier now to imagine another radio dialogue.

"Sealift Tanker, this is Air Force 007. Thanks for the drink, we are full up, disconnecting, and on our way. Hope to see you on the next trip."

"Air Force 007, this is Sealift Tanker. Glad to be of help, no thanks expected. Just a routine task for MSC."

Far out? Probably so, but an interesting concept nevertheless. It might someday be a reality for mobility of land, sea and air forces is the key to military readiness and U.S. security. Even stranger ideas have become reality in the past 50 years. ⚓



While the oceangoing tug USNS Ute is docked at the U.S. Naval Station, Guam, Captain Arne Willenhag (left) and executive officer, Navy Lt. Dennis Shea, proudly display the big E pennant. Ute is one of eight MSC ships that fly the pennants. All are winners of Smart Ship Awards. Story on Page 15 .

DEPARTMENT OF THE NAVY
MILITARY SEALIFT COMMAND
WASHINGTON, D. C. 20390

OFFICIAL BUSINESS
PENALTY FOR PRIVATE USE, $300

POSTAGE AND FEES PAID
DEPARTMENT OF THE NAVY
DOD-316
THIRD CLASS

U.S. MAIL

U.S. GOVERNMENT PRINTING OFFICE 1978-261-249/5